

With regard to point V

Reasoned statement regarding novelty, inventive step and industrial applicability; citations and explanations in support of this statement

- 1 Reference is made to the following documents:

D1: US-A-5 396 131 (MIKI TAKAHIRO et al.) 7 March 1995 (1995-03-07)
D2: US-A-5 539 406 (MIKI TAKAHIRO et al.) 23 July 1996 (1996-07-23)

2 Document D4 was not cited in the international search report. A copy of this document is attached.

D4: US-A-2003/0067346 (GAGGL RICHARD) 10 April 2003 (2003-04-10)

Claim 1

- 2 The present application fails to comply with the requirements of PCT article **33(1)** since the subject matter of claim **1** does not involve an inventive step as defined in article **33(3)** PCT.
 - 2.1 Document **D1** is considered to be the closest prior art.
 - 2.2 Document **D1** describes (the references in brackets apply to this document) an analogue-to-digital converter having differential inputs and a parallel structure (col. 1, lines 8-13 and Figs. 1-4), comprising at least one network of N series resistors with value r (col. 6, lines 8-30 and Fig. 2, block 5, Fig. 3, resistors 111-115) and one network of N comparators (col. 6, lines 8-17 and Fig. 2, blocks 61-6n), where
 - the series resistor network receives a reference voltage (Fig. 3, blocks 101, 102) and is traversed by a fixed current (col. 6, lines 18-30);
 - the row i comparator (Fig. 4, block 61) essentially comprises a dual differential amplifier with four inputs (from col. 7, line 54 to col. 8, line 55 and Fig. 4, block 400 and inputs VA1, VA2, VR1a and VR1b), two inputs receiving a differential voltage VS-VN to be converted (from col. 6, line 41 to col. 7, line 53 and Fig. 4, inputs VA1, VA2), a third being connected to a row i resistor of the network (col. 6, lines 46-50 and Fig. 4, VR1a), and a fourth input being connected to an N-i row resistor of the network (col. 6, lines 46-50 and Fig. 4, VR1b), the dual differential amplifier supplying a voltage representing a difference of the form $(VS - VN) - (N - 2i)r \cdot I_0$ (Tables 2-3), and the comparator switching in one direction or the other depending on the level of the voltage VS-

VN and on the row i of the comparator when said difference changes sign (from col. 6, line 58 to col. 7, line 52 and Figs 12-13).

- 2.3 The subject matter of claim 1 differs from said document **D1** in that the resistor network is supplied by a variable reference voltage originating from a servoloop circuit which locks the level of the voltage of the middle of the resistor network to a voltage equal to the common mode voltage of the differential voltage to be converted.
- 2.4 The problem that the present invention is intended to solve may therefore be considered to be the implementation of an analogue-to-digital converter having differential inputs and a parallel structure which avoids the possible incorrect indications due to parasitic variations in the same circuit.
- 2.5 According to the description given in **D4** (page 2, para. [0019]; page 3, paras [0045]-[0046]; claims 1, 5, 10 and Fig. 2, *Vfloat*) exhibits the same advantages as those mentioned in the present application. Consequently, for the person skilled in the art, including this feature in the analogue-to-digital converter described in document **D1** amounts to an ordinary measure to solve the stated problem.
- 2.6 Consequently, the subject matter of claim 1 does not involve an inventive step as defined by PCT Article **33(3)**.

Claims 2-3

- 3 Dependent claims **2-3** contain no feature which, in combination with those of any one of the claims to which they refer, meet the requirements of the PCT in respect of inventive step (PCT Article **33(3)**), the reasons being the following:
- the additional features defined in claim **2** are well known in analogue-to-digital converters with parallel structure, and the subject matter of this claim thus does not involve an inventive step;
 - the additional features defined in claim **3** are disclosed in document **D1** (Fig. 4).

Industrial application

- 4 The subject matter of claims **1-3** is industrially applicable in the field of analogue-to-digital converters.